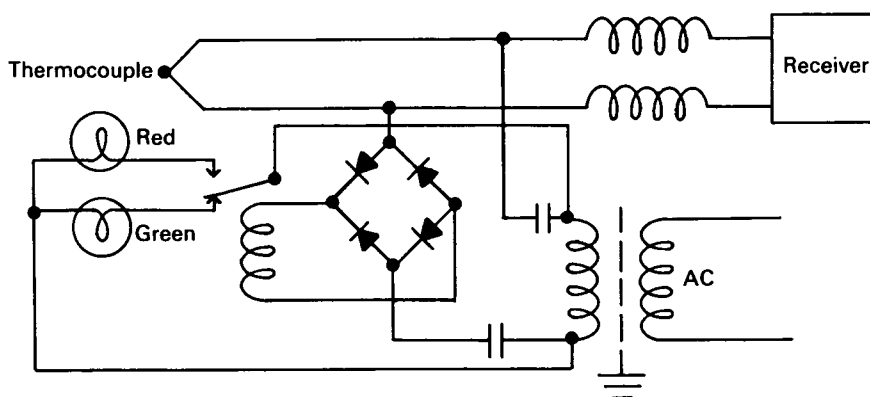


# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

## Simple Circuit Continuously Monitors Thermocouple Sensor



**The problem:** Previously, checking of continuity in thermocouple sensors involved disconnecting leads and connecting an instrument directly across the individual thermocouple. This was a time-consuming and inconvenient method which could not be used while the major equipment was under power.

**The solution:** A series circuit depending on continuity in the thermocouple to energize a relay to light a green indicator lamp. Relay dropout lights a red lamp to give a positive indication of a thermocouple discontinuity.

**How it's done:** The thermocouple is capacitively connected in series with the secondary of a transformer operated by a constant 60-cycle source. With the thermocouple operating properly, the output voltage of the transformer is applied across a bridge rectifier to operate a relay lighting the green light. A thermocouple discontinuity will interrupt current flow

in the rectifier circuit causing the relay to drop out. This lights the red light as the green light goes out.

### Notes:

1. This method may be used to monitor continuity in any control circuit operated at dc voltages.
2. For further information about this invention inquiries may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama, 35812  
Reference: B63-10567

**Patent status:** NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA Headquarters, Washington, D.C., 20546.

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